

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 91-078

NPDES NO. CA0028959

WASTE DISCHARGE REQUIREMENTS FOR:

THE CLOROX COMPANY.
850 - 42ND AVENUE
OAKLAND, ALAMEDA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Board) finds that:

1. The Clorox Company (hereinafter discharger) is the owner of a bleach manufacturing facility (Site) located at the above address. A NPDES permit (Order No. 86-20, Permit No. CA0028959) was issued to the facility on March 19, 1986. The Permit was issued to allow discharge of treated groundwater to the Bay.
2. The discharger, by application dated February 8, 1991 has applied for waste discharge requirements and a permit to discharge waste under the National Pollutant Discharge Elimination System (NPDES).
3. The Site occupies one block in an industrialized area of south Oakland. The Site is situated between High Street and the Highway 77 (185) underpass, near the Nimitz Freeway and is approximately 0.4 mile east-northeast of the Oakland-Alameda Estuary. The discharger is principally involved in the manufacturing and storing household dry bleach at this location. Prior to 1957, the discharger produced liquid chlorine bleach product at this location using a "mercury cell" process. The mercury process was used at the Site from approximately 1919 until 1957, and during that period leaks and spills of elemental mercury occurred which resulted in contamination of shallow soils at the Site.
4. Subsurface investigations at the Site were initiated by the discharger in 1980 in order to satisfy requirements of the federal Comprehensive Environmental Compensation and Liability Act (CERCLA). Soil and shallow groundwater at the Site were found to be polluted with elemental mercury which had been used in the manufacture of liquid chlorine bleach.

5. The lateral and vertical extent of groundwater pollution has been investigated by the discharger and showed to be confined to a shallow water-bearing zone which is present below the Site at a depth of 10 to 20 feet. Past investigations revealed no mercury pollution in deeper water-bearing zones. Therefore monitoring was restricted to 14 monitoring wells which are installed to monitor shallow-zone groundwater. Routine groundwater monitoring at the Site has been from a network of 9 on-site and 5 off-site monitoring wells, as well as five freeway underpass subdrains. Wells are sampled quarterly, biannually or annually depending upon the well. A groundwater monitoring program for the Site was proposed by the discharger and is addressed independently in Waste Discharge Requirements Order No. 86-21 and presented in correspondence from the discharger. Groundwater monitoring results are presented in annual reports submitted by the discharger to the Board since 1987.
6. Groundwater pollution extends down gradient from the Site in a west-northwesterly direction for a distance of 200 to 300 feet. Subdrains located in the Highway 77 (185) underpass act to dewater shallow groundwater down gradient from the Site. Groundwater from the Highway 185 subdrains has been found to be polluted with mercury to a maximum of 8.1 ppb.
7. The Waste Discharge Requirements issued for the Site (Order No. 86-21) require monitoring of groundwater in the subdrains. However, groundwater has not been detected in 1990 quarterly monitoring of subdrain D-3 and biannual monitoring of subdrains D-2, D-4, D-5 and D-6. In addition the discharger has stated that the monitoring of the subdrains represents a significant safety risk due to traffic in the underpass. Therefore, the discharger will discontinue monitoring of the subdrains. Changes to the discharger's groundwater monitoring program were addressed in correspondence from staff.
8. The remedial technology chosen by the discharger in 1985 consists of a 23-foot deep groundwater collection trench or "gallery" which runs for 300 feet along the length of the facility's western boundary. The gallery is designed to capture polluted groundwater. Pumps located at either end of the gallery draw down the shallow-zone water table in the vicinity of the mercury source area. Monitoring of groundwater has shown the extraction system to influence water levels 100 to 150 feet offsite, thereby halting the lateral migration of mercury in groundwater. Seventy to 80 percent of the total mercury present in offsite soil and groundwater is believed to be within this area.

Groundwater is piped into the adjacent building where it is stored in tanks before treatment. Groundwater is batch treated in a system consisting of: equalization,

precipitation, filtration, ion exchange, pH adjustment, carbon adsorption, and aeration.

9. In 1990, the discharger extensively retrofitted the existing groundwater treatment system to increase capacity and ease of operations.
11. The groundwater treatment system is designed to handle a flow of approximately 1.7 gallons per minute (gpm) or 2,500 gallons per day (gpd). Treatment rates are dependent upon groundwater flow into the gallery. Recent dry weather flows have been between 400 and 600 gpd with past wet weather flows reaching 1200 gpd.
12. Effluent is discharged through an inlet to a storm sewer located adjacent to the site. The storm sewer drains into the Alameda-Oakland Estuary (Attachment A).
13. The system has been shown to remove more than 99% of the mercury from the extracted groundwater. Concentrations of mercury from onsite groundwater monitoring wells have been as high as 28.0 parts per million (ppm). Concentrations of mercury in groundwater pumped from the drainage gallery typically range from 0.3 ppm to 3.0 ppm as varies seasonally. During a two year period, from July 1988 through June 1990, the average mercury concentration ranged from 1.8 ppm in the dry seasons to 0.6 ppm in the wet seasons. During the same two year period the average mercury concentration in the treatment system effluent was 3.0 parts per billion (ppb). Final mercury concentrations in storm drain effluent (at the point of discharge to the Estuary) are expected to be significantly lower than discharge concentrations due to dilution by other water present in the storm drain.
14. According to the discharger, reclamation of the treated groundwater in this area is not technically and economically feasible. The discharger does not use a significant volume of water at its property, and there are no demands for irrigation or industrial process water in the area. In addition, in 1986 the East Bay Municipal Utility District did not allow the discharge of the treated groundwater to their facilities. Therefore, a NPDES permit (Order No. 86-20) was issued to the discharger to allow the treated groundwater to be discharged to a storm sewer.
15. The NPDES Permit (Order No. 86-20) specified an effluent limit concentration of 10.0 ppb. The Basin Plan states that a shallow water discharge should be 1.0 parts per billion (Basin Plan, Table IV-1). The discharger received a discharge limit which is higher than the Basin Plan limit as a result of the following 1) meeting the Basin Plan was not technologically achievable; 2) normal operations would result in a effluent

concentration which is very close to 1.0 ppb; 3) additional dilution within the storm drain would result in a lowering of the mercury concentration of the effluent reaching the Estuary and 4) the discharge is of low volume in comparison to other regulated discharges.

16. The discharger conducted a three-year shellfish biomonitoring study at the storm drain point of discharge in the Estuary, to confirm that the discharge has no deleterious effect on Estuary biota. Results of the study showed no statistical difference between mercury uptake in mussels living within the storm drain discharge and those living further away in the Estuary.
17. The Board adopted Resolution No. 88-160 on October 19, 1988. The Resolution urges dischargers of extracted groundwater from site cleanup projects to reclaim their effluent and that when reclamation is not technically and economically feasible to discharge to publicly owned treatment works (POTWs). If neither reclamation nor discharge to POTWs is technically and economically feasible, it is the intent of the Board to adopt NPDES permits authorizing the discharge of extracted groundwater.
18. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives for the South San Francisco Bay.
19. The existing and potential beneficial uses of the Central San Francisco Bay and contiguous surface waters are:
 - a. Contact and Non-Contact Recreation
 - b. Wildlife Habitat
 - c. Fish Spawning and Migration
 - d. Preservation of Rare and Endangered Species
 - e. Industrial process supply
 - f. Navigation
 - g. Ocean Commercial and Sport Fishing
 - h. Shellfish Harvesting
 - i. Estuarine Habitat
20. The existing and potential beneficial uses of the groundwaters in the Oakland area and East Bay Plain are:
 - a. Municipal and Domestic supply
 - b. Industrial process supply
 - c. Industrial service supply
 - d. Agricultural supply
21. The Basin Plan prohibits discharge of "wastewater which has particular characteristics of concern to beneficial uses": (a) "at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1, or into any

nontidal water, dead-end slough, similar confined waters, or any immediate tributaries thereof".

22. The Basin Plan allows for exceptions to the prohibition referred to in Finding 21 above when it can be demonstrated that a net environmental benefit can be derived as a result of the discharge.
23. Exception to the prohibition referred to in Finding 22 is warranted because the discharge is an integral part of a program to clean up polluted ground water and thereby produce an environmental benefit, and because receiving water concentrations are expected to be below levels that would affect beneficial uses. Should future studies indicate chronic effects, not currently anticipated, the Board will review the requirements of this order based upon Receiving Water Limitation D.1.e.
24. The Basin Plan prohibits discharge of "all conservative toxic and deleterious substances, above those levels which can be achieved by a program acceptable to the Board, to waters of the Basin." The discharger's groundwater extraction and treatment system and associated operation, maintenance, and monitoring plan constitutes an acceptable control program for minimizing the discharge of toxicants to waters of the State.
25. Effluent limitations of this Order are based on the Basin Plan, State plans and policies, U.S. Environmental Protection Agency guidance, and best engineering and geologic judgement as to best available technology economically achievable.
26. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.
27. The Board has notified the discharger and interested agencies and persons of its intent to issue waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
28. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions

1. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Section 13050 of the California Water Code.
2. The discharge shall be limited to treated groundwater and added chemicals which do not adversely affect the environment and comply with requirements of this Order.
3. The maximum monthly average flow shall not exceed 2,500 gpd. If additional units, similar to the original treatment units, are provided additional flow may be permitted in proportion to the capacity of the additional units upon written approval of the Board's Executive Officer.

B. Effluent Limitations

1. The effluent at the point of discharge to the storm drain shall not contain constituents in excess of the following limits:

<u>Constituent</u>	<u>Unit</u>	<u>Daily Maximum</u>
1. Total Mercury	ug/l	10.0
2. The pH of the discharge shall not exceed 8.5 nor be less than 6.5		
3. Toxicity:		
The survival of test fish in 96-hour static renewal bioassays of the discharge shall be a median of 90% survival and a 90 percentile value of not less than 70% survival.		

C. Receiving Water Limitations

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place:
 - a. Floating, suspended, or deposited macroscopic particulate matter or foam;
 - b. Bottom deposits or aquatic growths;
 - c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;

- e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:
- a. Dissolved oxygen: 5.0 mg/l minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause lesser concentration(s) than specified above, the discharge shall not cause further reduction in the concentration of dissolved oxygen.
 - b. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.
 - c. Un-ionized ammonia: 0.025 mg/l (as N) Annual Median
0.4 mg/l (as N) Maximum at any time
3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

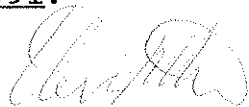
E. Provisions

- 1. The discharger shall comply with all sections of this Order immediately upon adoption.
- 2. The discharger shall comply with the Self-Monitoring Program as adopted by the Board and as may be amended by the Executive Officer. As new groundwater extraction and treatment systems are completed, the schedule of

monitoring specified in Part B, Table 1, of the Self Monitoring Program will be reviewed.

3. The discharger shall notify the Regional Board if the self-monitoring program results, or if any activity has occurred or will occur which would result in a frequent or routine discharge of any toxic pollutant not limited by this Order.
4. This permit may be modified prior to the expiration date to include effluent limitations for toxic constituents determined to be present in significant amounts in the discharge through the comprehensive monitoring program included as part of this order.
5. The discharger shall comply with all items of the attached "Standard Provisions, Reporting Requirements and Definitions" dated December 1986 except Items A.10, B.2, B.3, C.8 and C.11.
6. This Order expires May 15, 1996. The discharger must file a Report of Waste Discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code not later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.
7. This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant to Section 402 of the Clean Water Act, or amendments thereto, and shall become effective 10 days after the date of its adoption provided the Regional Administrator, Environmental Protection Agency, has no objections. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

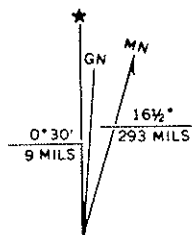
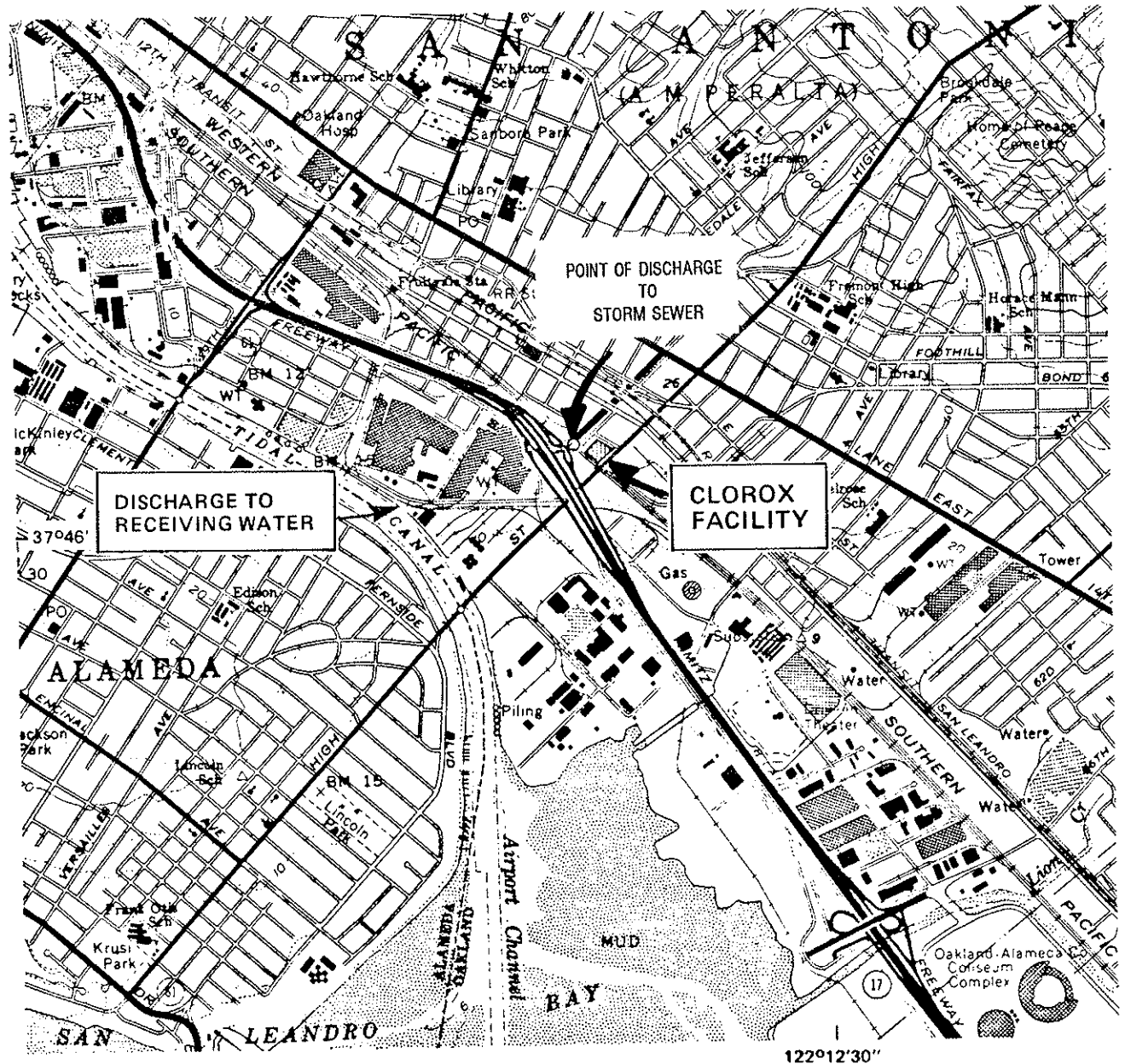
I, Steven R. Ritchie, Executive Officer do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on May 15, 1991.



STEVEN R. RITCHIE
EXECUTIVE OFFICER

Attachments:

Attachment A (Site Map)
Standard Provisions & Reporting Requirements, December 1986.
Self-Monitoring Program



USGS Map
Oakland East, California
Scale 1:24,000



GENERAL LOCATION MAP
CLOROX OAKLAND FACILITY
APPLICATION FOR NPDES PERMIT
Form 1 Section XI

APPENDIX C

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

THE CLOROX COMPANY.
850 42ND AVENUE.
OAKLAND. ALAMEDA COUNTY

NPDES NO. CA0028959

ORDER 91-0

CONSISTS OF

PART A (dated December 1986 Mod. SBTD 1/23/87)

AND

PART B

Part B

SELF-MONITORING PROGRAM FOR THE CLOROX COMPANY
850 42ND STREET, OAKLAND

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

Station

I-1 At a point after groundwater extraction and immediately prior to treatment.

B. EFFLUENT

E-1 At a point after treatment but before discharge into the storm drain.

C. RECEIVING WATERS

None.

II. REPORTING

A. If the system is shut down during start up because of a violation, the Regional Board shall be notified within one day and corrective measures shall be taken. If the system is shut down more than 48 hours during the original start up (awaiting analyses results, etc.), the original start up procedures and sampling must be repeated. If the system is shut down after the start up period (maintenance, repair, violations, etc.) the reason for shut down, corrective action taken and the proposed start up procedures shall be reported to the Board at least 15 days before start up.

B. Quarterly and Annual reports shall be submitted to the Regional Board as shown in this plan.

III. MISCELLANEOUS REPORTING

A report describing the need, method of chemical application and disposal shall be submitted to the Board at least 30 days before the use of any chemicals in the treatment, or operation and maintenance of the treatment units, is to begin.

IV. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis shall be that given in

Table 1 (attached).

V. BIOASSAY REQUIREMENT

The fish species to be used for compliance in the bioassay shall be both the three spined stickleback and the sand dab.

VI. MODIFICATION TO PART A OF THE SELF-MONITORING PROGRAM A.

Delete Sections:

D.1.a., D.2.a., D.2.d., D.2.e., D.2.g., D.2.h., D.3., E.4.,

Insert Sections:

D.2.a. Samples of effluent and receiving waters shall be collected at times coincident with influent sampling unless otherwise stipulated. The Regional Board or Executive Officer may approve an alternative sampling plan if it is demonstrated that expected operating conditions warrant a deviation from the standard sampling plan.

D.2.d. If analytical results are received showing any instantaneous maximum limit is exceeded, a confirmation sample shall be taken within 24 hours and results known within 24 hours of the sampling.

D.2.e. If any instantaneous maximum limit for a constituent is exceeded in the confirmation sample described in Section D.2.d., the discharge shall be terminated until the cause of the violation is found and corrected. For other violations, the discharger shall implement procedures that are acceptable to the Executive Officer on a case by case basis.

E.6. Waste Treatment Facilities

a. Deposits, discolorations, and/or plugging in the treatment system (stripping tower, carbon filters, etc.) which could adversely affect the system reliability and performance.

b. Operation of the float and/or pressure shutoff valves installed to prevent system overflow or bypass.

C. Modify Sections:

G.4. Written reports under G.4. shall be filed quarterly, by the 30th of January, April, July, and October.


- G.4.b. The report format shall be a format that is acceptable to the Executive Officer.
- G.4.d. The report format shall be a format that is acceptable to the Executive Officer.
- G.4.e. The report format shall be a format that is acceptable to the Executive Officer. NPDES Discharge Monitoring Report, EPA Form 3320-1, is provided as guidance. Influent and effluent data summary reports shall be submitted only to the Regional Board and do not need to be submitted to the EPA.

Executive Officer
California Regional Water Quality Control Board San
Francisco Bay Region
2101 Webster Street, Suite 500 Oakland, CA 94612

- G.5 Change "By January 31 of each calendar year..." to "By July 31 of each calendar year..."

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 91-__.
2. Was adopted by the Board on May 15, 1991.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and revisions will be ordered by Executive Officer or Regional Board.



Steven R. Ritchie
Executive Officer

Attachments: Table 1
Appendices: A-E

TABLE 1

SCHEDULE FOR SAMPLING, MEASUREMENTS AND ANALYSIS

SAMPLING STATION	I-1	E-1	
TYPE OF SAMPLE	G	G	
Flow Rate (gal/day)	D	D	
pH (units)	Q	Q	
Temperature (C°)	Q	Q	
Dissolved Oxygen (mg/l)		Q	
Un-ionized Ammonia (as N)		Q	
Total Mercury	W	W	
Volatile Organic Compounds by EPA Method 601	Y	Y	
Fish Toxicity, 96-hr		Y	

LEGEND FOR TABLE

W = weekly

D = Daily

G = Grab

Q = Quarterly, Once in March, June, September, and
December

Y = Once per year